THE SOUTHWEST REGION--ITS RESOURCES AND OUTLOOK

by
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Mr. Chairman and Friends:

We in Oklahoma are delighted to welcome you here for a first-hand look at the great Southwest. We are newer than New England; Oklahoma celebrates its fiftieth birthday as a state this year. We are older than Jamestown; white men came to Oklahoma seventy-nine years before the Mayflower landing. Tradition, here, as elsewhere, adds to environment to form the flavor of our regional character. First rumored by early explorers and travelers to be "the great American desert," large parts of our eight-state region are characterized by tremendous space and boundless horizons, brightness of the sunshine, great mineral resources, people widely scattered, but also concentrated into growing cities, and by rich resources of energy, water and a vigorous population. On these plains the wind always blows, with infinite variation, from the hot, searing Chinook to the norther, the blizzard and the tornado. Classified as semi-arid, the climate is not halfway between wet and dry. In many years, agriculture can prosper. But there is an unpredictable quality, a definite hazard to it. Some years it is too wet; some, too dry. Ability to live with uncertainty is a quality enforced by this climate on those who depend on the land. It is the kind of climate in which great civilizations have been born as men overcome great obstacles. It is the same climate that exists over one-seventh of the earth today.

The people of the Southwest are characterized by competence, optimism, vigor, excitement, pride, informality, open-mindedness, willingness to experiment, strength of personality, closeness to the earth, as well as a certain restlessness and lack of inhibition. Southwesterners live much out of doors, travel long distances for business or pleasure, are inclined to be friendly and unconventional in speech and dress, and also to take long chances. They move about, change their plans, rebuild their dwellings, and cheerfully begin again. The descendants of the oldest American men still live in the pueblos of New Mexico--and, not far away, our newest American urban civilization may be found in the rich and rapidly expanding cities, like Dallas, Houston, Denver, Wichita, Albuquerque, Tulsa and Oklahoma City. But we do not yet have what some of you in the East have come to call "the megapolis."

Your invitation to me for this occasion was quite specific. Both Mr. Royster and Mr. Miller informed me that you wished information about the resources of the region, and I have prepared several tables of statistics under the heading "Southwest Fact Sheets." These will be available to you, should you wish to look them over, or take them with you. Basically, they describe a region populated by twenty-five million people; with urbanization rapidly taking place; with per capita income rising more rapidly than the national average; with small farms being consolidated into big ranches; with a dozen major rivers flowing from west to east and carrying large volumes of water, somewhat intermittently; valuable mineral deposits; very large resources of natural gas, oil and coal; a wide variety of climate, rainfall, topography, flora and fauna, with education predominantly carried out through public institutions, and with large areas of the western fringe struggling with those problems which face all peoples living on the great plains from Canada to Mexico.

It is characteristic of the cities of this region that, while each has an economy of its own, each serves as a gateway to large areas with differing economies and differing problems. Eastward, from the 98th meridian, where we are today, annual rainfall steadily increases until it reaches forty inches at the Arkansas line. Westward, annual rainfall declines until it reaches a low fifteen inches at the tip of our Panhandle. The problems of the Great Plains differ greatly from those of the watered East. It is as a gateway city that Oklahoma City and others of the Southwest find much variety and exposure to problems which challenge their greatest ingenuity. This is an important and little understood element of our environment.

Can anyone lay down boundaries for the regions of the United States, without involving the dangers of sectionalism about which our earliest national leaders warned? We in the Southwest have studied the history of many efforts, particularly the period from Frederick Jackson Turner down to date. We note that statisticians have made great progress in the application of criteria of homogeneity and contiguity through co-efficients of determination and variation. We follow the work of The Regional Science Association at the University of Pennsylvania. We see that the Committee for Economic Development (in New York) has employed a full-time researcher as Director of Area Development. We try to keep up with efforts being made in the President's Council of Economic Advisors and in the Bureau of the Budget, through the "building block" method of statistical accumulation, to fashion new tools for assessment of those regional problems which are all too frequently masked by the large arrays of national statistics. We listen when men like Harvey Perloff speak out for a "dynamic approach to regional demarcation" based on a "sound rationale * * * for group consciousness and cooperative action."

Beginning twenty-five years ago, Oklahoma's leaders have steadily thought in regional terms. In a 1930 report, the Southwest was defined as follows: "It is a section of the United States clearly defined by natural boundaries and with a definite character all its own. Beginning with the Gulf and the Mexican Border on the South, sharply defined by the Mississippi River on the East and the Rocky Mountains on the West, a rough square practically regular on the West, North and South, stretching from the northern borders of Missouri, Kansas and Colorado to the Gulf, is an area which is homogeneous in geographical and populational characteristics, with a definite similarity of history, and a unity of resources and of commercial relations."

Into this region, in pursuit of "manifest destiny" and free land, the American pioneer pushed forward, only to find that his inheritance of riparian law and methods of utilizing water simply would not work. He had to invent dry land farming to survive. He found that the woodsman's rifle was inadequate to handle the hit-and-run tactics of the plains Indian and he adopted the six shooter, which enabled him to pursue and fire without dismounting. Barbed wire and the windmill were inventions of the greatest significance. When he found he could not drive his cattle to market through the wooded country to the east, he drove them north and stayed in the open country west of the timber line. From the earliest days in the Southwest, innovation has been a way of life.

In a world moving toward large-scale, organized effort with consequent uniformity, this is still a land of strength of personality and vivid contrast. The rich were and are very rich, and we need mention only Richardson, Cullen and Frank Phillips. The bad were really bad--Billy the Kid, Sam Bass, Jesse James. But these met their equals on the side of the law in Hanging Judge Parker, Pat Garrett, Wyatt Earp, and the Texas Ranger. Character tends to be fully developed, open, positive, whether good or bad.

Before this group, it is not necessary to say that our newspapers still retain the vitality to call a spade a spade, and a scoundrel a skunk.

If all this sounds like boasting, most Southwesterners would say, "This does no harm in a new and vigorous region." They look on the folk lore of the Southwest as an asset. The Cowboy Hall of Fame is serious business with us.

Compared with the East and West Coasts, there isn't really much money here. Most of our men of wealth have built their fortunes in their lifetime. Increasing numbers of them are tending to plow back part of it into the educational, cultural and intellectual development of the region.

In Oklahoma, our "Big Red" football team is not our only claim to fame. When Sir Henry Tizard came from England to participate in our International Symposium on Science last June, the two things he most wanted to see were the DeGolyer Science Collection, and the University of Oklahoma Press. He characterized both as being within the best two or three in the world.

Those of you who examine the "Southwest Fact Sheets" will see that the people of this region are knit together by a unifying influence more powerful than a common heritage of recent frontier life. This unifying influence is the availability of large amounts of energy--horsepower, on which to build our future.

Energy requires water. Our major rivers flow eastward to the Mississippi and the Gulf, many traversing the entire region and making available within it large quantities of high quality water.

Is our climate a limiting factor? My answer is air conditioning. We simply cool a little more in the summer and heat a little less in the winter.

Is it big enough to contain Texas and still leave living room for the rest of us? Certainly!

Is the current of events running in the direction we want to go? My answer is "Yes." In fact, seldom, in the whole history of human progress, has such an opportunity presented itself as now unfolds before us. For years we have exported in raw form the fruits of our agriculture, our petroleum, our minerals, and our most talented youth. Other regions have grown rich from the profits of processing and manufacturing, while our region, taken as a whole, has remained the primary producer. We have not enjoyed a balanced economic and cultural growth. As our pioneer forbears civilized the wilderness, and the fruits of this region made their way back to eastern markets, the return flow of machines, science, art and education was restricted by many factors. But all that is rapidly changing. Our interior position is becoming an asset. The most populous parts of our nation are suffering from congestion, pollution of air and water, smog, traffic jams and, in general, a lack of foresight in urban and metropolitan growth. These are not yet generally present in the Southwest. We believe we can avoid the mistakes others have made. While we still have room to move about and before a flood of escapees from congestion and pollution migrate southwestward, we are determined to set the pattern for a new and more satisfactory way of life--a modern, scientific, innovative Southwestern civilization.

What are the tools with which we have to work?

The first tool, as I have indicated, is horsepower--energy. Within the eight southwestern states, we have such large amounts that we find it hard to comprehend the vastness of our riches.

74% of all proven reserves of crude oil in the U.S.
97% of all proven reserves of natural gas in the U.S.
18% of the remaining reserves of coal in the U.S.
10% of the water power remaining undeveloped in the U.S.

What does this mean? In every highly developed region of the world, a large per capita utilization of energy is the chief distinguishing feature of the economy. The addition of horsepower to manpower and brainpower to raw materials is what builds the good life. Further, these hydrocarbons are being steadily upgraded by research as they become the raw materials for a whole new range of atomic age industries. Over the past few years, we have become very much aware that since World War II, fifty billion dollars has been invested in research and development by government, universities and industry. We see the present seven billion dollar annual rate. We see new products, new industries and new payrolls created as if by magic. We see scientists act on a belief in the alchemist's dream--gold from lead, and a suit of clothes from natural gas. We see the tremendous stream of invigorating capital investment that flows from demand for today's new products. We have no difficulty in believing the new automobile or plastic raincoat, the new electronic computer, the new refining or manufacturing process, the new solid state physics is better than the old. We believe a growing economy is better than a stagnant one; an individual spurred on to grow in knowledge, skill, culture, religion and freedom is better than a complacent one. But we believe that none of this can continue its forward march without energy to turn the wheels of progress. We in the Southwest are indeed fortunate to have immediately at hand the vast horsepower demanded by modern industrial growth.

If the first tool with which we can fashion our future is abundant energy, the second is abundant water. The compelling fact which recent studies, like that of the Arkansas, White and Red Rivers, have made clear about this Southwest Region is that we do have water to combime with our horsepower, our brainpower and our raw materials. While the western reaches of our rivers look dry much of the time, in the course of a year they carry lots of water.

The Arkansas River alone carries thirty-five million acre feet into the Mississippi each year. This is over eleven trillion gallons. From Oklahoma, the water outflow is almost a hundred times our total use in the state for municipal, industrial and other domestic purposes.

What is true of Oklahoma is in many ways also true of the other energy-rich states of the Southwest. The Red River annually dumps 36,000,000 acre feet in to the Mississippi; the White River 22,000,000. In Texas, there are ten major rivers with an average annual run-off of more than a million acre feet each. The annual total for the state is 53,000,000. The Kansas River will average about 5,000,000 acre feet per year.

We may not ever be water-rich, but with modern engineering and science, we do not need to be water-poor. We have but to capture, conserve and properly distribute our water resources and combine them with our energy resources to form the greatest industrial base yet undeveloped anywhere in this Nation. At a time when other regions are approaching the limit of their water utilization, we are practically at the beginning.

The third tool with which we have to work is an abundance of men and women and boys and girls of pioneer stock who have the qualities of mind and spirit to build in this region and, on this industrial base, a better way of life. The ability and resourcefulness and willingness to work of our southwestern citizens are producing outstanding records of efficiency in many complex industries. Our growing urban communities are providing indigenous markets. Per capita income is rising and capital accumulation is accelerating.

Consider these facts about the eight states of the Southwest:

Per capita income has risen from $425 in 1940 to $1,520 in 1955. This was from 71% of the national average to 82.2%. In the 5 years from 1950-1955, Oklahoma and Arkansas were 3d and 4th in the Nation in rate of increase.

Consumer spendable income is expected to be up from $33,621,000,000 in 1955, to $50,000,000,000 in 1970.

More than 50% of our 25 million people now live in urban communities.

While parts of this region had an out migration of a million people between 1940 and 1950, this trend has been reversed, and projections show that we will grow at the same rate as the national average. (Of course, some sections of the region will be above and others below this average.)

In 1970, when our southwest population is thirty million, the nation's population will be over two hundred million. Automobiles will total eighty million, and houses will be built at a rate of two and one-half million per year.

Total water use in the Nation in 1955 was two hundred and sixty-two billion gallons per day, up from two hundred and three billion in 1950. In 1970, the requirement will be four hundred and four billions of gallons per day, or double the 1950 rate. In the next 10 years, energy required in the Nation will rise from forty-one quadrillion BTU's to fifty-eight quadrillion. The gross national product will rise from four hundred billion dollars to over six hundred billion.

With such a future for our nation and our region, we are asking ourselves how we get ready. How do 25 million people get themselves together, decide what is important to them, and embark on courses of action to make their hopes and dreams come true?

If the examples I give of what we are doing emphasize Oklahoma rather than the other southwestern states, I hope you will understand that this is because I know most about my own home state. I assure you there are many similar activities throughout the Southwest. Also, there is a rising trend toward regional thinking. This trend, it seems to me, is not toward the formalities of interstate compacts or governmental action, but rather, toward a careful search by many minds for facts that will indicate unifying forces and common goals toward which we can march together. We have a consuming interest in learning more and more about what has been called, "The kind of economy that inherently provides the basis for continued growth * * * the type of growth that itself provides for further advance." * We believe, here in the Southwest, we can move in that direction.

We believe also that the non-material or non-economic aspects of our southwestern life can, through our tradition of pioneering and freedom, show these same characteristics of exponential growth and infinite expansion. We see our problem, in words used fifty years ago by Edwin A. Alderman about North Carolina, as how to "industrialize our society without commercializing its soul."

One of the best examples of what is going on in the Southwest is the Frontiers of Science "ferment," or "movement," here in Oklahoma.

By way of background, let me say that on the morning of April 22, 1889, what is now Oklahoma City was open prairie, almost a wilderness. By nightfall of that day, ten thousand people had pitched camp together and a town had been born. Few of these people had ever seen each other before. If they were alike at all, it was in their search for opportunity and in their willingness to take great personal risk to find it. As one wag put it, "The thirteen colonies were settled by refugees from Europe, but we were settled by refugees from the United States." The first establishment was the Town Government. The second was the Board of Trade. Among these highly opportunistic people, the Town Government soon came under attack. As one participant reported, "My most vivid recollection of that first summer is of the tumultuous meetings, at times held almost nightly, in which fiery orators, speaking from a farm wagon, drawn to the center of the main street, denounced the atrocities of the Town Government amid wild yells of approval from the crowd." The Board of Trade, as a voluntary organization free from deep involvement in the political tumble, became the gathering agency of the creative people of the town. Quietly, without fanfare, it began to build the framework on which to build a city. From its earliest days, it captured the efforts of educators, ministers, physicians and lawyers, as well as businessmen. One of its most vigorous members became the President of Oklahoma's land grant college, now called Oklahoma State University. This new American city, only sixty-eight years of age this year, has derived extraordinary benefits from this extra-political agency of wide community representation and resultant broad and deep concern with total community welfare. This vehicle of the town's corporate hopes and dreams, guided by a dedicated and highly competent staff, has provided the necessary framework for vigorous, area-wide cooperation to get the necessary things done. Today, sixty-eight years after "The Old Run," a thirty-mile radius, rotating about the center of downtown Oklahoma City, will sweep over

* Perloff, in "Regional Income," Vol. 21, National Bureau of Economic Research

more than five hundred thousand people. The framework of cooperation, so effective through the days of the pioneering of the land, persists today and is still pioneering--in what we call "The New Run."--into our second fifty years of statehood.

But it is not the usual Chamber of Commerce activity. Its position is that of the dominant planning and community development agency of central Oklahoma. Within the past few years, through voluntary underwriting and because the usual governmental processes were either undeveloped or too slow, it has handled the purchase of one hundred and ten miles of six-lane right of way for a belt and access highway system completely encircling the city, and has paved sixty of these miles. It has developed seventeen industrial districts to make a great metropolitan area balanced in its development and free from the usual hold-outs and political compromises. Schools, colleges, parks, a symphony orchestra, opera, moving of railroads, urban and rural projects, hospital location and finance, and many other kinds of activities, have been spun off from this dynamo. The fact that, since its inception, this agency has involved important elements of the community's most highly trained people in its activities--physicians, lawyers, college presidents and public school people--is a fact of great importance. The problems of regional development in the Southwest are like our other American problems. They will be solved by developing agencies through which our best minds can interact in the stimulating atmosphere of knowledge that their plans will lead to action.

A few years ago, the Chamber of Commerce formed a Frontiers of Science Committee to explore the opportunities ahead in the field of research and science. As one member said, "There is something big goin' on and we want to get in on it." But the subject proved too complex for vicarious assimilation.

As the Managing Director, Mr. Stanley Draper, told the Committee, "The expenditure of tens of billions for scientific research and all this talk of atoms and automation is too abstract for us. We can't understand science until we find a way to go out and see it, and feel it, and smell it, and taste it." So the Committee took a most significant step. It journeyed to the major scientific laboratories of the country on what it called "Investigatory Tours." These men met the scientists face to face at Bell Telephone Laboratories, Massachusetts Institute of Technology, Brookhaven National Laboratory, Oak Ridge Institute of Nuclear Studies, California Institute of Technology, and many others. A careful report of each visit was written up and circulated. The newspapers reported the activity. The Committee visited Oklahoma's own universities and industrial laboratories. A science lecture series was instituted, meaning that every few weeks a prominent leader of science would be brought to the Friday Forum of the Chamber of Commerce, where he would have an audience of two to three hundred members of the business community and several classes of high school students of science with their teachers. In the question-and-answer period following these lectures, it was the high school students who asked the questions.

Finally, as the activity built up, a fund of four hundred thousand dollars was subscribed to form a foundation to conduct a five-year program: (1) to disseminate information about the opportunities and responsibilities ahead in the field of science, (2) to improve science education, and (3) to bring in science installations.

The most important part of the science lecture series and the visitations of the Chamber of Commerce Committee was the opportunity to meet the scientists themselves. Every leading scientist emphasized that the improvement of education in mathematics and physics, particularly in the secondary schools, was one of the greatest problems facing our

Nation; that strong universities doing basic research were essential to the healthy growth of any modern community; and that the volume of work to be done in the field of science was so tremendous that further major centers of scientific research were urgently needed.

Governmental officials, including Director Waterman of the National Science Foundation, Mr. Donald Quarles, then Secretary of the Air Force, and Chairman Strauss, of the Atomic Energy Commission, all emphasized the great necessity for spreading out the present concentrations of scientific work so as to get broader understanding throughout the Nation and eventually through this process a better formulation of public policy and a more sensible implementation of that policy.

Leaders of industry emphasized the importance of the growing concentrations of new small business enterprises exploiting new products and processes and all located in close proximity to the university research centers, such as the Harvard-M.I.T. one in Massachusetts.

So, our foundation took as its goals the three I have mentioned--science information, science education, science installations.

It would take too long to detail all the activities of the Frontiers of Science Foundation. I can give you only a few highlights, but I believe these indicate the kind of framework within which Oklahomans, and many from other southwestern states, have had an opportunity to get a glimpse of the tremendous new things in store through science and technology, and to make their plans to participate actively in the developments of the next decades.

In 1956, the Foundation in association with the Governor and the Southwest American Exposition, and with the assistance of the Atomic Energy Commission, brought to Oklahoma City the Atoms for Peace Exhibit which had been constructed for the international atomic meeting at Geneva, Switzerland. This exhibit was manned by two hundred and fifty especially trained scientists from Oklahoma universities and industry. During the three weeks it was open, over three hundred and fifty thousand persons went through this exhibit, and we started each of them out with a fifteen-minute movie on basic elements of atomic science. We had to operate three movie theaters simultaneously, but the effort paid off. The interest was such that the enrollment in physics in our high schools more than tripled in the following year. In public meeting places, social conversation was more about science and the atomic age than about the weather.

That same year, working with the Oklahoma Curriculum Improvement Association and supported by educational leaders within and without the state, the first state-wide testing program in high school science subjects was conducted. Sixty-seven thousand, five hundred students took the tests and the incidence of absence that day was the lowest on record in the Oklahoma high schools. Over seven thousand young people of exceptional ability were identified and the Foundation is encouraging each of them to develop their talents to their fullest capacity. Teachers report that bright boys and girls who had been disciplinary problems have gone to work and found new outlets for their ability. The interest in improving science education in our schools had been so great that at the beginning of the school session last month, the front page story in The Daily Oklahoman read as follows: "Boys and girls reporting to public schools for the 1957-58 term will be taught by better paid and better trained teachers than ever before and fewer youngsters will be attending high schools that are too tiny to conduct an adequate program."

Also in 1956, supported by the National Science Foundation, the first year-long high

school science teacher training institute was started at Oklahoma State University and is now in its second year. Another experiment supported by our Foundation and carried on by the Oklahoma City public schools was the first state-wide television teaching program for high school mathematics and physics. This program is now beginning its second year and is expanded and strengthened by a substantial grant from the Ford Foundation.

Studies have been made by some of our ablest businessmen, scientists, and government leaders to identify those problems of public policy to which science could make its greatest contribution, and the Foundation has sponsored a number of catalytic type conferences, bringing experts from all over the state together to establish working relationships.

This year, in the celebration of our state's fiftieth anniversary, we have added a strong intellectual component through the bringing to Oklahoma of eight leading scientists, three from abroad, for an all-day seminar in our Municipal Auditorium on what science and technology can contribute to our next fifty years. A total of between four and five thousand people spent time in the Auditorium last June 17th to hear Dr. W. O. Baker, Dr. Vannevar Bush, Dr. H. B. G. Casimir, Dr. Lee DuBridge, Dr. Mervin Kelly, Dr. Augustus B. Kinzel, Dr. Frederick Seitz, Dr. Laurence H. Snyder, Dr. Hakan Sterky, Dr. Guy Suits, Sir Henry Tizard, and Dr. Alan T. Waterman help us set our goals for the future. Many ordinary citizens stayed the whole day and a large number of our community leaders brought their wives to sit beside them.

Following up this seminar, the Foundation sponsored at the America's New Frontiers Exposition a three weeks' Demonstration, the first ever especially prepared to show basic research as a process, rather than as gadgets. Twelve leading American companies and our two Oklahoma universities prepared the exhibits. Almost a quarter of a million citizens took the time to go through this demonstration of basic research. During the three weeks it was open, selected school superintendents and college teachers, through individual conferences, gave special counseling to anyone interested in going over plans for their future education or development. Over two thousand, four hundred men and women availed themselves of this free counseling service--a real first in this ferment, or movement, called "The Frontiers of Science."

The Foundation has assisted each of our major universities in acquiring nuclear reactors under the Atomic Energy Commission training program. The first of these will be dedicated this month at Oklahoma State University. Many other projects could be mentioned if time were available. I will conclude with one, an investigation, financed by the Foundation and conducted by the University of Oklahoma, looking toward the establishment in the state of a large electronic computer research and training center. Somewhat to our surprise, we found there were already twenty electronic brains at work in the state.

We in the Southwest believe our future, and that of our Nation, requires us to seek every possible framework within which the interacting factors which affect the individual can continue to produce a climate of freedom and confidence in which the energies of millions can most readily combine for great achievement. We want to do our part. We are convinced that if we can make more things and make them cheaper, everybody's share is bigger; that progress comes through competition; that equality of opportunity is a goal to be sought; that solutions to our most difficult problems come through laying them before the largest number of able minds; and that, through freedom, the individual seizes opportunity to pursue his own well-being and happiness. It seems to us of great significance that in this new era of vast and rapid change when new attitudes and values so rapidly and so

powerfully affect every facet of our lives, that our old hard-won tradition of freedom and our new frontier of science show remarkable similarities. Both feed on self-regenerative forces. The products of each are characterized by exponential growth. Both are capable of infinite expansion. Both must be understood and used by those who would reap their benefits.

Clearly, realization of all we hope for depends heavily on our educational foresight and strength in our educational institutions. Higher education in our eight-state region includes 251 institutions of post-high school grade, enrolling nearly one-half million students. One hundred and forty-six of these are four-year institutions fully accredited by their respective accrediting agencies; 7 of them equal or exceed Harvard University in size. We have 11 accredited schools of medicine, 22 accredited schools of law and 27 accredited schools of engineering. Twenty-seven of these institutions award the Doctor of Philosophy degree in one or more fields of scholarship. There are 6 university presses of major stature operating in the Southwest.

These higher institutions are predominantly publicly supported. Together with the public secondary schools of the region--which far outnumber the private schools--they are turning in a remarkable performance. In school years completed, the adult population of four of the eight states equal or exceed the national median. In percentage of adult population with four or more years of college, five states equal or exceed the national median. In percentage of elementary school teachers who have completed four or more years of college, five states exceed the national median. In Oklahoma, 98% of the public school teaching staff holds the bachelor's degree or higher.

These achievements, in a region as new as this, are worthy of your attention.

We, here in the Southwest, would like you to think of us as having the brainpower, the horsepower, the water, the frontier tradition and the desire to keep pioneering in this mid-twentieth century frontier of science technology and change. We would like to convince you that in our society problems created by change can best be met as pioneers have always met their problems and that this southwestern country has a better understanding of what it means to be a pioneer than the older, more settled areas. We hope you will write about us with this flavor, as you interpret the American Scene. After all, one of us gave you the rather helpful expression, "All I know is what I read in the papers," and we know that what you write, America reads.

End

Note: Mr. Webb, among others, is also a Director of Kerr-McGee Oil Industries, Inc., of Fidelity National Bank & Trust Co., of McDonnell Aircraft Co., of Federal Home Loan Bank of Topeka, of Oak Ridge Institute of Nuclear Studies, and of the Oklahoma City Chamber of Commerce; and is a Trustee of The George Washington University, and of Committee for Economic Development.

Southwest Fact Sheet
Misc. Selected Data on Mineral, Forest, and Agricultural Resources

			Estimated per cent of the U. S.
Proved Natural Gas Reserves	1957	210,136,000 million cu. ft.	97.2%
Proved Curde Oil Reserves	1957	24,176,000,000 barrels	74.9%
Coal Reserves		347,562 million short tons	20 %
Helium Production and Resources			95 %
Carbon black prod'd.			90 %
Bauxite (for Aluminum) Prod'd.			98 %
Salt Reserves			60 %
Sulphur Reserves			35 %

Misc. resources underlying this region: Iron and steel, manganese, molybdenum, tungsten, cadmium, copper, lead, sinc, gold, silver, germanium, cement, clay and clay products, gypsum, limestone and dolomite, barite, fluorspar, glass sand, pyrites, tripoli, volcanic ash, antimony, cobalt, graphite, mercury, mica, potash, vanadium, uranium and many stone products.

Forest Land		143,597,000 acres	23 %

		8 State	U. S.	8 States per cent
Value of all field crops ($000)	1955	2,708,228	9,924,850	27%
Cotton Produced (000 bales)	1955	7,423	14,721	50%
Sugar cane sirup produced (000 gallons)	1955	2,100	3,720	56%
Rice produced (bags)	1955	44,412	55,902	79%
Value of all live-stock on farms ($000)	1954	2,301,562	11,244,661	20%
Number of cattle on farms	1956	25,178,000	95,166,000	27%
Number of sheep & lambs on farms (000)	1956	9,548	30,838	31%
Farm population	1954	4,251,600	21,395,000	20 %
Farm Household	1954	1,187,620	5,695,000	21 %
Gross Farm Income ($000)	1954	6,679,877	33,137,209	20 %
Gross Farm Income per farm (average)	1954	6,183	6,157	100.4$

Southwest Fact Sheet -- Water

The Arkansas River dumps 35,000,000 acre feet of water into the Mississippi.(1) This is 11,406,500,000,000 gallons average annually.

The White River dumps about 22,000,000 acre feet of water into the Mississippi.(1) This is 7,169,800,000,000 gallons average annually.

The Red River dumps about 36,000,000 acre feet of water into the Mississippi.(1) This is 11,732,400,000,000 gallons average annually.

Approximately 804,557,300,000 gallons of water are used annually for steam plants, municipalities and for industrial use.(2)

The amount of water used for steam plants, municipalities and for industrial use as a percentage of the amount of water that annually goes out of the Arkansas-White-Red drainage basin (on the average), is 2.65%.

"Water outflow from Oklahoma is approximately 100 times the municipal, industrial and other domestic use in the state." (3)

"The Arkansas River gains 20 million acre feet of annual flow in passing through Oklahoma." (3)

"It has been estimated that an average of 37,000,000 acre feet of water flows through and out of Oklahoma each year."(4)

Statistics on Texas Rivers(5)

Average Annual Runoff of Texas Streams	
Canadian	501,700 Acre feet
Red	8,875,000
Sulphur	2,211,000
Sabine	6,952,000
Rio Grande	4,783,000
Neches	6,254,000
Trinity	5,922,000
San Jacinto	1,847,000
Brazos	5,723,000
Colorado	2,310,000
Navidad	267,500
Lavaca	328,100
Guadalupe	1,872,000
Nueces	640,000
Others	3,073,000
TOTAL	53,264,420 acre feet annual average

The Kansas River dumps 4,910,000 acre feet annually (average) into the Missouri River. This is 1,598,696,000,000 gallons annually. (6)

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(1) AWR Report, Part II, Sect. 17, page xiii
(2) AWR Report, Part II, Sec. 8, page 33 (local conversion)
(3) "Water in Oklahoma" by Kenneth D. McCall in Okla. Business Bulletin, July, 1954.
(4) "Water is the Key to the Future of Oklahoma," by Francis J. Wilson, Okla. Business Bulletin, May, 1954.
(5) More Water for Texans, Walter Prescott Webb, Univ. of Texas Press, 1954, page 7.
(6) Mr. M. G. Barclay, Bureau of Reclamation, Oklahoma City Office.

Southwest Fact Sheet -- Population and Area

Series of Data	Year	Arkansas	Colorado	Kansas	Louisiana	Missouri	New Mexico	Oklahoma	Texas	Total of 8 State Area	U.S. TOTAL	8 State Total as per cent U.S
Area of States(1) in Sq. Miles	1954	53104	104247	82276	48523	69674	121666	69919	267339	816748	3022387	27 %
(Land)		52675	103922	82108	45162	69226	121511	69031	263513	807148	2974726	27.4
(Water)		429	325	168	3361	448	155	888	3826	9600	47661	20.1
POPULATION(1)	1860	425450	34277	107206	708002	1182012	93516		604215	3154678	31443321	10 %
	1890	1128211	413249	1428108	1118588	2679185	160282	258657	2235527	9421807	62947714	15
	1900	1311564	539700	1470495	1381625	3106665	195310	790391	3048710	11133450	75994575	14.6
	1910	1574449	799024	1690949	1656388	3293335	327301	1657155	3896542	14895143	91972266	16.2
	1920	175220L	939629	1769257	1798509	3404055	360350	2028283	4663228	16715515	105710620	15.8
	1930	1854482	1035791	1880999	2101593	3629367	423317	2396040	5824715	19146304	122775046	15.6
	1940	1949387	1123296	1801028	2363880	3784664	531818	2336434	6414824	20305331	131669275	15.4
	1950	1909511	1324089	1905299	2683516	3954653	681187	2233351	7711194	22403800	150597361	14.9
	1954 Est	1779000	1450000	1979000	2858000	4038000	750000	2138000	8251000	23243000	162000000	14.3
PROJECTIONS	1960(2)	1975000	1575000	2135000	3214000	4361000	878000	2320000	9356000	25814000	176103000	14.6
	1965(2)	2018000	1681000	2222000	3439000	4538000	962000	2366000	10088000	27314000	188593000	14.3
	1970(3)	2194000	1821000	2401000	3666000	4926000	1035000	2587000	10971000	29601000	207000000	14.3
	1975(3)	2385000	1988000	2610000	3982000	5355000	1125000	2812000	11925000	32174000	225000000	14.3

(1) U. S. Census of Population, 1950. Dept. of Commerce, Bureau of Census
(2) Current Population Reports, 1954, Dept. of Commerce, Bureau of Census
(3) Estimated based on same relative percentage as in (2)

% Urban Population
For States in the Great Southwest
1900-1950

STATE	1900	1910	1920	1930	1940	1950	
						Old Urb. Def.	New Urban Def.
Ark.	8.5	12.9	16.6	20.6	22.2	32.3	33.0
Colo.	48.3	50.3	48.2	50.2	52.6	57.4	62.7
Kan.	22.4	29.1	34.8	38.8	41.9	47.4	52.1
La.	26.5	30.0	34.9	39.7	41.5	50.8	54.8
Mo.	36.3	42.3	46.6	51.2	51.8	57.9	61.5
N. Mex.	14.0	14.2	18.0	25.2	33.2	46.2	50.2
Okla.	7.4	19.2	26.5	34.3	37.6	49.6	51.0
Texas	17.1	24.1	32.4	41.0	45.4	59.8	62.7
U. S.	39.7	45.7	51.2	56.2	56.5	59.0	64.0

Source: U. S. Department of Commerce, Bureau of the Census

Per Capita Income

% Change 1950-55 For the Great Southwest

State	% Change 1950-55	Rank
Arkansas	32%	4
Colorado	22%	26
Kansas	20%	34
Louisiana	22%	26
Missouri	25%	20
New Mexico	23%	24
Oklahoma	33%	3
Texas	20%	34
U. S.	24%	

Source: U. S. Department of Commerce
Office of Business Economics

Southwest Fact Sheet -- Income Analysis

Income Series of Data	Year	Arkansas	Colorado	Kansas	Louisiana	Missouri	New Mexico	Oklahoma	Texas	Total of 8 State area	U. S. Total	8 State as % of U. S.
Per Capita(1) Income, dollars	1929	305	637	535	415	628	407	454	478	482	703	69 %
	1940	256	648	426	363	524	375	373	432	Average 425	595	71 %
	1950	805	1446	1374	1089	1443	1163	1133	1340	Average 1224	1491	82.1%
	1955	1071	1782	1649	1344	1786	1424	1499	1621	Average 1522	1846	82.4%
	1956	1088	1863	1668	1444	1858	1494	1561	1686	Average 1583	1940	81.6%
										Average		
Total (1) Personal Income (Million dollars)	1929	564	642	999	866	2275	171	1077	2752	9346	85661	11 %
	1940	501	617	762	861	1982	199	867	2776	8565	78522	11 %
	1950	1539	1930	2643	2937	5705	798	2514	10375	28441	225473	12.1%
	1955	1930	2756	3397	3944	7502	1129	3312	14179	38149	303268	12.6%
	1956	1974	3003	3508	4338	7904	1218	3491	15044	40480	324281	12.5%
Consumer(2) Spendable Income ($000)	1956	1927,743	2,462,000	3,224,000	3,900,468	6,892,037	1,116,748	3,224,840	14,014,994	36762830	285046425	12.9%
% of U. S.		.7	.9	1.1	1.4	2.4	.4	1.1	4.9	12.9		

(1) Survey of Current Business, August, 1956, pp. 10 and August, 1957, pp. 11

(2) Consumer Markets, 1956, published by Standard Rate and Data Service, Inc.

Southwest Fact Sheet -- Production, Reserves and % of Counties for Crude Oil and Natural Gas

Series	Year	Arkansas	Colorado	Kansas	Louisiana	Missouri	New Mexico	Oklahoma	Texas	Total of 8 State Area	U.S. Total	8 State As % of U. S.
Total Number of Counties	1955	75	63	105	64	114	32	77	254	784	3049	25.7%
Total Counties w/oil and/or gas	1955	16	23	80	59	6	8	66	205	463 (59% of 8 state Counties prod)	929 (50% of all prod. counties of U.S. located in 8 states)	
Crude Oil Produced (barrels)	1955[1]	28506000	51018000	121869000	268233000	62500	82398000	203337000	1058720000	1814143000	2484521000	73 %
	1956	28862000	58486000	124317000	296036000		87984000	214262000	1111469000	1921416000	2616696000	73 %
Natural Gas Produced (Mil.cu.ft.)	1955[1]	37017	57000	442243	1565014	20	511705	639118	4786794	8038911	9340000	86 %
	1956[3]	39000 (estimate)	76200 (estimate)	508700	1879000		618200	649800	5180900	8951800	10278100	87 %
Proved natural gas reserves[(2)] January 1 (mill.cu.ft.)	1956	1164367	2253562	16293080	42435592		18584912	13204739	108287548	202222380	223697445	90.4%
	1957	1165000	2460000	16800000	45900000		20000000	13700000	110111000	210136000	231624000	97.2%
Proved crude[(2)] Oil Reserves January 1 (barrels)	1956	329539000	334003000	998068000	3255287000		819658000	2016045000	14933502000	22686102000	30012170000	75.5%
	1957	375000000	393000000	1018000000	4214000000		968000000	2139000000	15069000000	24176000000	32697400000	73.9%
	% of U. S.	1.15	1.2	3.11	12.89		2.96	6.54	46.09	72.86		

1 U. S. Bureau of Mines, Arnold and Kemnitzer, World Oil, IPAA
2 American Petroleum Institute
3 The Oil and Gas Journal, January 28, 1957

Southwest Fact Sheet -- Water Power; Electrical Energy; Coal

Series of Data	Year	Arkansas	Colorado	Kansas	Louisiana	Missouri	New Mexico	Oklahoma	Texas	Total of 8 State area	U.S. Total	8 States as % of U.S.
Water Power (1) Developed (Thousands K.W.)	1955	391	248	6	0	193	25	166	391	1,420	25,742	5.5%
Water Power (1) Undeveloped (Est. Thous. K.W.)	1955	1455	1,786	290	50	2,938	209	921	1,080	8,729	86,895	10 %
Electrical Energy production by Electrical Utilities and Indus. Plants (2) (Mill. k.w. hrs)	1955	6221	4,114	5,913	13,112	7,449	2,017	5,611	36,370	80,807	629,010	12.8%
Production of (3) Coal (Thousands - short tons)	1955	578	3,568	742		3,232	201	2,164	Unavail.	10,485	490,838	2.1%
Remaining (3) Reserves of Coal (Mill. short tons)	Jan. 1 1956	1716	100,408	20,774		79,362	61,755	3,672	31,000	298,687	1,903,215	15.7%

(1) Federal Power Commission, taken from Statistical Abstract of the U. S., 1957, p. 530
(2) " " " " " " " " " " " " p. 529
(3) Department of Interior, Geological Survey.